

App. No. 10/604,065  
Response dated September 29, 2005  
Reply to Office Action of June 29, 2005

**Amendments to the Specification (other than claims):**

Please replace paragraph [0049] with the following amended paragraph:

[0049] Further according to the present method, the ceramic as substrates can be laminated according to requirements. Lamination may be done via an adhesive agent. The adhesive agent—being a compound of Group IIa or Group IIIa elements, and a binder and solvent, added to an aluminum oxide powder or aluminum nitride powder and made into a paste—is spread onto the bonding surface by a technique such as screen printing. The thickness of the applied adhesive agent is not particularly restricted, but preferably is  $[[5 \mu\text{m}]]$  5  $\mu\text{m}$  or more. Bonding defects such as pinholes and bonding irregularities are liable to arise in the adhesive layer with thicknesses of less than 5  $\mu\text{m}$ .

Please replace paragraph [0059] with the following amended paragraph:

[0059] A further preferable condition is that the surface roughness of the wafer-carrying surface be  $[[5 \mu\text{m}]]$  5  $\mu\text{m}$  in Ra. If the roughness is over  $[[5 \mu\text{m}]]$  5  $\mu\text{m}$  in Ra, grains loosened from the AlN due to friction between the wafer holder and the wafer can grow numerous. Particles loosened in that case become contaminants that have a negative effect on processes, such as film deposition and etching, on the wafer. Furthermore, then, a surface roughness of 1  $\mu\text{m}$  or less in Ra is ideal.

Please replace paragraph [0069] with the following amended paragraph:

[0069] In addition, a tungsten paste was prepared by adding ethyl cellulose as a binder and butyl Carbitol™ as a solvent to, and mixing together with: 98.8 weight % of a tungsten powder whose mean particle diameter was  $[[2.0 \mu\text{m}]]$  2.0  $\mu\text{m}$ , 0.6 weight %  $\text{Y}_2\text{O}_3$ , and 0.6 weight %  $\text{Al}_2\text{O}_3$ . A pot mill and a triple-roller mill were used

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for mixing. This tungsten paste was formed into a pattern for a heater circuit by screen-printing the paste onto the AlN sinters.

Please replace paragraph [0070] with the following amended paragraph:

[0070] Electrical circuits of differing porosity were prepared by degreasing at 800°C under a nitrogen atmosphere the AlN sinters printed with the heater circuits, and then baking them at temperatures of from 1800°C to 1900°C as set forth in Table I. Wafer holders were prepared by stacking a plurality of layers of AlN sinters not fashioned with electrical circuitry on the AlN sinters on which the heater circuit was formed, and laminating the stack together using a ~~Al<sub>2</sub>O<sub>3</sub>—Y<sub>2</sub>O<sub>3</sub>—AlN~~ Al<sub>2</sub>O<sub>3</sub>—Y<sub>2</sub>O<sub>3</sub>—AlN as a bonding agent. A polishing process was performed on the wafer-retaining face of the wafer holders so that it would be ~~[[1 μm]]~~ 1 μm or less in Ra, and on the shaft-joining face so that it would be ~~[[5 μm]]~~ 5 μm or less in Ra. The wafer holders were also processed to true their outer diameter. The dimensions of the post-processing wafer holders were 340 mm outside diameter and 16 mm thickness.

Please replace paragraph [0071] with the following amended paragraph:

[0071] A shaft made of AlN, 80 mm in outside diameter, 60 mm inside diameter, and 300 mm in length was then mounted onto the face on the side of the wafer holders opposite the wafer-retaining face. The bonding agent was ~~50% Al<sub>2</sub>O<sub>3</sub>—30% Y<sub>2</sub>O<sub>3</sub>—20% AlN~~ 50% Al<sub>2</sub>O<sub>3</sub>—30% Y<sub>2</sub>O<sub>3</sub>—20% AlN.

Please delete paragraph [0074].

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Please replace paragraph [0075] with the following amended paragraph:

[0075] Table I.

No.	Bake temp. (°C)	Pore proportion (%)	Temp. diff. (°C)	Displacement (μm) (μm)
1	1800	2.0	6	70
2	1850	0.5	8	80
3	1870	0.1	14	95
4	1900	0.05	21	120

Please delete paragraph [0079].

Please replace paragraph [0080] with the following amended paragraph:

[0080] Table II.

No.	Heater-circuit substance	Bake temp. (°C)	Pore proportion (%)	Temp. diff. (°C)	Displacement (μm) (μm)
5	Mo	1800	1.9	7	75
6	Mo	1840	0.4	9	85
7	Mo	1860	0.1	14	95
8	Mo	1890	0.03	25	130
9	Ta	1800	2.0	7	75
10	Ta	1840	0.6	10	85
11	Ta	1860	0.2	16	100
12	Ta	1880	0.04	30	145

Please replace paragraph [0081] with the following amended paragraph:

[0081] As is evident from Tables I and II, in cases in which W, Mo or Ta was utilized for the electrical circuitry, if the porosity of the circuitry was made 0.1% or more, displacement exceeding 100 μm did not appear in the wafer holders, even heated to

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700°C, and the temperature differential was within 20°C. But with porosity of less than 0.1%, displacement differentials exceeding ~~[[100  $\mu$ m]]~~ 100  $\mu$ m occurred; moreover, the temperature differentials were large, exceeding 20°C, such that uniform temperature distribution could not be obtained.

Please delete paragraph [0084].

Please replace paragraph [0085] with the following amended paragraph:

[0085] Table III.

No.	Heater-circuit substance	Bake temp. (°C)	Pore proportion (%)	Temp. diff. (°C)	Displacement <del>(<math>\mu</math>m)</del> ( $\mu$ m)
13	A	850	5.0	3	40
14	A	870	2.2	7	80
15	A	890	1.6	13	115
16	B	850	3.9	4	55
17	B	870	2.0	6	75
18	B	890	1.5	12	105